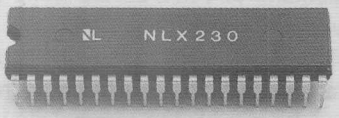
NeuraLogix

Information Sheet

NLX230

Single-Chip Fuzzy Logic

Fuzzy MicroController™



The Fuzzy MicroController (FMC), Model NLX230, is a fully configurable VLSI Fuzzy Logic engine. It is one in a family of MicroController devices offered by NeuraLogix. The FMC devices are intended to augment or supplant conventional microprocessor implementation in performance or cost-critical embedded control systems.

Instead of using algorithms executed sequentially to control an output based on input conditions, as done in general purpose microprocessor implementations, the devices employ the principles of Fuzzy Logic to calculate an optimal output action based on input conditions, thereby performing a parallel operation to control the output. This efficient implementation allows high processing rates (30 Million rules/second) at low cost.

Applications

- Replace Conventional PID Controllers
- Smart Appliances
- Pattern Matching
- Sequencers, State Machines and Timers
- Automotive Applications
- Robotics
- Approximate Reasoning
- Expert Systems

Features

- Powerful Fuzzy Logic Processing (30M Rules/Sec)
- Simple, Low Cost PC Based Development Environment
- Cascadable
- Easy to Configure
- Minimal External Components
- Alternate Packaging Available
- Low Power CMOS
- Eight Inputs & Outputs
- Sixteen Input Fuzzifiers
- Sixty-four Rules Total
- Interfaces to Microprocessors
- Crystal or R/C Clock Generation

Description

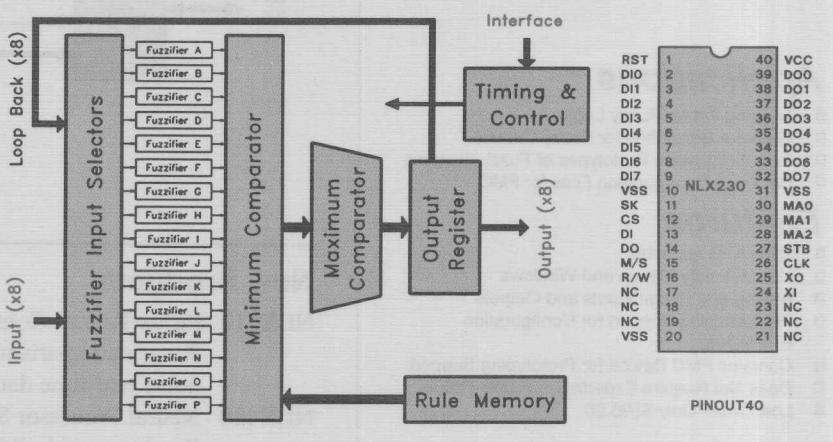
The FMC is designed around the principles of Fuzzy Logic.

It is the primary utility of Fuzzy Logic control applications that lets one construct arbitrarily complex linear or nonlinear functions with intuitively understandable terms and rules. Thus the Fuzzy Logic approach captures the approximate nature of expert human reasoning better than more conventional approaches.

Of course, conventional microprocessor-based approaches also allow the specification of functions with terms and rules. The critical difference with Fuzzy Logic control is that the terms and rules do not evaluate just the two values, "True" or "False". Rather, fuzzy terms admit to degrees of membership in multiple sets, and fuzzy rules may have a continuous range of truth or possibility.

Rules are used to determine what set of conditions are present at the inputs. In the FMC each rule consists of up to sixteen terms, one for each crisp-input/fuzzy membership function pairing, and an Action Value which is the user defined amount by which the output value for that rule is to be modified. The rule which best fits the given set of input conditions determines what ranking and rule processing is performed in parallel for all inputs and outputs.

An efficient digital implementation of Fuzzy Logic principle allows the NLX230 to achieve high processing rates (30 Million rules/second) at low cost. This, coupled with low production costs, makes the FMC by American NeuraLogix the standard for Fuzzy Logic implementation.



PINOUT40

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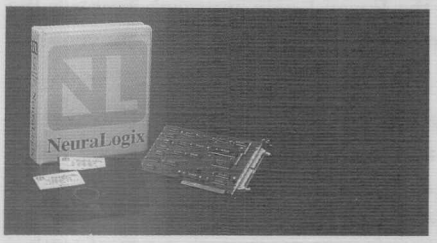
Information Sheet

ADS230

Fuzzy Logic Made Friendly And Affordable

Fuzzy MicroController™ Development System



The Fuzzy MicroController Development System, Model ADS230, is a complete development system for the NeuraLogix NLX230 Fuzzy MicroController. The ADS230 provides both hardware and software control over the various features and operating modes of the NLX230 Fuzzy MicroController.

The FMC device can be exercised with the user-friendly, pull-down menu, software or through external analog or digital inputs and outputs. The IBM PC compatible system provides an inexpensive application evaluation environment.

Applications

- Training Aid for Fuzzy Logic
- Software Simulation for Fuzzy Control
- Actual Hardware Prototypes of Fuzzy Systems
- Generate Configuration Files for FMC

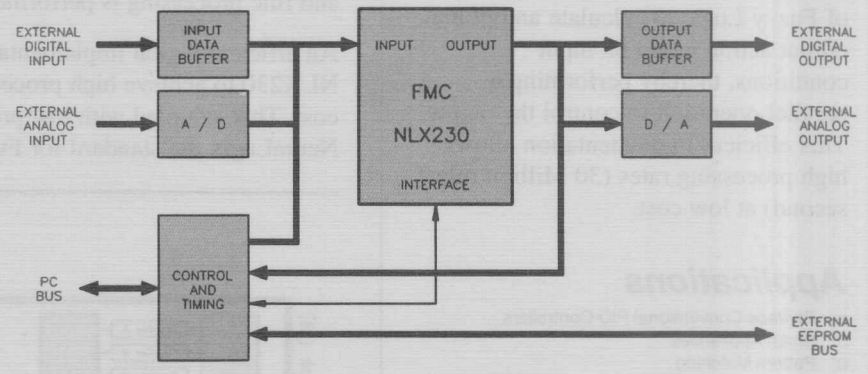
Features

- IBM PC Compatible
- User Friendly Menus and Windows
- Analog and Digital Inputs and Outputs
- Programming Support for Configuration EEPROMs
- Contains FMC Device for Prototyping Support
- Does Not Require Expertise in Fuzzy Theory
- Low Cost - Only $395.00

Description

The FMC Development System PC board contains an FMC device along with interface hardware and control and logic support circuitry. The FMC Development System card installs in an IBM XT, AT or compatible computer. The FMC device on-board can analyze data generated from software or from external analog or digital sources. Output can be provided to external analog or digital outputs or read back through the FMC Development System software.

Software is provided on a 5-1/4 inch (360K IBM format) floppy disk. The program software provides function control to allow demonstration of the capabilities of the Fuzzy MicroController device. The FMC Development System program permits complete menu-driven control over data input, logic rules and output actions. Outputs corresponding to input data are provided as well as fuzzifier and rule interpretations. Support is provided for programming, reading and verifying EEPROMs, that can be used for stand-alone applications of the FMC devices.



New Products

		Available
NLX110	Fuzzy Pattern Comparator Pattern comparisons on inaccurate or noisy real-time data	3Q91
NLX420	Neural Processor Slice Fundamental building block for the construction of real-time neural network systems.	3Q91
NLX112	Fuzzy Data Correlator High speed correlator for real-time data and imaging systems	4Q91

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